MYRRHA, A Multipurpose Accelerator Driven System for R&D. Need for New Nuclear Data ?

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The MYRRHA facility in planning has been conceived as a fast spectrum irradiation facility for various R&D applications complementary to the thermal spectrum RJH (Réacteur Jules Horowitz) facility, in planning in France. This situation would give Europe a full research capability in terms of nuclear R&D.

Furthermore, the disposal of radioactive wastes resulting from industrial nuclear energy production has still to find a fully satisfactory solution, especially in terms of environmental and social acceptability. As a consequence, most countries with significant nuclear power generating capacity are currently investigating various options for the disposal of their nuclear waste. Scientists are looking for ways to drastically reduce (by a factor of 100 or more) the radio-toxicity of the High Level Waste (HLW) to be stored in a deep geological repository, and to reduce the time needed to reach the radioactivity level of the ore originally used to produce energy. This can be achieved via the development of the Partitioning and Transmutation and burning MAs and to a less extent LLFPs in Accelerator Driven Systems. The MYRRHA project contribution will be in helping to demonstrate the ADS concept at reasonable power level and the demonstration of the technological feasibility of MA and LLFP transmutation under real conditions.

In this paper a resume for the choice of the basic parameters of MYRRHA and a description of the design achieved at the end of the pre-design phase of the project will be given. The author will be emphasizing the new needs for nuclear data as regard to the design needs as well as the transmutation in ADS.

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